

REVIEW AND RESULTS TRANSMITTAL (R2D2)
OF DOCUMENT DECLASSIFICATION

729663

R2D2-BY-58-150

(Type document ID# here)

September 18, 1995

(Effective Date)

Document Identification:

LIVERMORE LABORATORY PLANS IN CASE OF A TEST MORATORIUM

(Full Title, if title is classified, create an unclassified title and place here)

EDWARD TELLER

(Name of the author, signer, or originator)

Oct 16, 1958

(Document date)

4

(# of pages in document)

SRD

(The initial classification of the document)

4.19.3

(Identification number or Cross-reference number)

*If a number is not available, this transmittal
must accompany the document*

The review of the above identified document has determined that:

Under Topic 1100, 1121 of TCG-WM-1 the document is declassified.

If not declassified check one or more of the following:

☐ Retains the original classification.

☐ This document is an excellent candidate for sanitization and
one possible sanitized version [is/is not] included for
Classification Office review.

☐ Downgrade to:

Level

[C, S]

Category

[FRD, NSI, RD]

Under Topic

of

Review Approval

Iven Moen 9/18/95
Signature

IVEN MOEN

ADC

(Name of the ADC or ADD)

(Title)

Nicholas E. Broderick 9/21/95
Signature

NICHOLAS E. BRODERICK

ADD

(Name)

(Title)

Initial review may be by either an Authorized Derivative
Classifier (ADC) or an Authorized Derivative Declassifier
(ADD).

Second review (declassification only) must be by an
Authorized Derivative Declassifier (ADD).

NOTICE: In accordance with DOE Order 5650.2B all holders of the document are to be further notified of the following:

The custodian of the document described herein is authorized to:

- ☐ remove, cancel, or otherwise void the classification markings of the document—or
- ☐ change the classification markings of the document.

Such markings may be removed or changed only when the correspondence of this notice to the document has been verified by two persons, who must ensure the document concerned identically fits the description provided herein. Otherwise, the markings may not be removed or changed. If there is any doubt regarding the identity of the document to which this notice applies, the recipient should contact the originator of the notice for further information. The persons who remove or change the markings and validate that action shall mark the document as having been declassified or downgraded, identify this notice as their authority for doing so, and sign and date the action on the document. If a person who receives this notice has given the document or copies thereof to others, this notice should be forwarded to such other custodians.

It is the responsibility of the organization that originated the document to notify all of the document holders of this action. If desired, a copy of this form may accompany the notice.

c: Classification Office, L-302
Classified Document
Projects Office, L-027

Originating Organization's (CAS)
(e.g., COMP:), _____
Print Room (if drawing), L-118

TID Reports Library, L-053

Review Requestor _____

Other _____

(L-1788(3/57)

~~SECRET~~

THIS DOCUMENT CONTAINS OF 4 PAGE
11 COPIES, SERIES a

UNIVERSITY OF CALIFORNIA

RADIATION LABORATORY
P. O. BOX 808
LIVERMORE, CALIFORNIA

Cite: BY-58-150
DOCUMENT NUMBER
October 16, 1958

Mr. John A. McCone, Chairman
U. S. Atomic Energy Commission
Washington 25, D. C.

My dear Mr. McCone:

The following is an outline of the Livermore Laboratory plans in case of a test moratorium.

Two Laboratory activities have been scheduled for an increase whether or not there is a test moratorium. These are the Pluto project and pure research.

Project Pluto has been held back during the last few months due to the extreme pressure of the Hardtack series. In order to meet our schedule on Pluto we will have to raise the percentage Laboratory effort from approximately 9.5 percent currently to 12 percent after November 1st (11 percent was proposed in program letter).

A similar situation holds in the case of pure research which has been hit hard by our accelerated testing program. Furthermore in the past years the Livermore Laboratory was expanding steadily and during this period of expansion we were working under constant pressure to accomplish important and immediate goals. We expect that the Laboratory shall be on a more steady level starting FY 1960. It is proper during this coming period to pay more attention to pure research since the long-range health and the reputation of the Laboratory depend to a considerable extent on this particular effort. It is therefore planned to increase pure research from 10.5 percent to 14 percent of the Laboratory effort.

A further activity in the Laboratory which is not connected with nuclear testing in any way is the Sherwood program. It is now rather generally recognized that no immediate and dramatic developments are likely to occur in this field. At the same time it is also felt that a very valuable facility has been established in the Laboratory which is directed toward the broad and important field of plasma research. It is planned to keep that effort on an even keel and to continue to devote 12 percent of the Laboratory effort to it.

According to our plans the main effort of the Laboratory will continue to be directed toward the development of nuclear explosives. A moratorium on testing does not decrease the importance of work on nuclear weapons, but requires

1257049

~~SECRET~~

~~RESTRICTED DATA~~

This document contains restricted data as defined in the Atomic Energy Act of 1946. Its transmittal or the disclosure of its contents in any manner is an unauthorized

~~SECRET~~

Mr. McCone

-2-

October 16, 1958

a different, perhaps more exacting and certainly more diversified approach to their design. In this spirit we plan to design new experimental devices for weapons development and to prepare them for possible tests in case the moratorium should be terminated or modified. We furthermore hope to be able to make some advances which are essential and which at the same time are so cautiously planned that in case of continued moratorium the corresponding weapons can be put into stockpile without testing. The effort of designing weapons in preparing for weapons tests is expected to absorb 34 percent of the Laboratory effort.

The way in which the next mentioned activities can be carried out will depend to a considerable extent on the precise terms of the moratorium. If we assume that only such tests will be banned which actually can be policed, then a considerable amount of testing can accompany the further development of weapons. We would plan to carry out these tests underground and we would hope that the tests can proceed on a continuous and well-considered basis, avoiding in the future the hectic and uneconomical procedure of bunching our experiments into test series.

If tests should be permitted at high altitudes the Laboratory would continue to have a great interest in this particular field. Even in case that the moratorium should prohibit such high altitude shots the Laboratory would continue to investigate this question theoretically and also to explore phenomena which are similar to nuclear explosions but which do not actually involve nuclear explosions. As an example, we should mention the possibility of dispersing and following radioactive substances at very high altitudes.

In connection with weapons effects it will be of continuing importance to find out to what extent underground shocks can be detected and to what extent underground shocks can be decoupled from the detectable earthquake waves of long wavelength. The most reliable method of such exploration would use small nuclear explosives. In case the test moratorium does not permit these, we propose to carry out less conclusive experiments with the help of high explosives. The two topics mentioned above, i.e., the investigations of shots at high altitudes and the study of effects of underground shots will be part of a continued effort of the testing group.

In case all nuclear tests are to be prohibited it will be of continuing importance to perform shots which can be properly called nuclear experiments rather than tests. These shots serve two purposes. The first is one-point shots which explore the safety of our weapons. The second is a group of experiments in which nuclear material will react to a detectable measure but in such a way as not to give enough yield which in itself would classify the experimental object as a weapon. How we should proceed with such one-point shots and nuclear experiments will depend to a very great extent on the precise way in which such permitted experiments are defined. One possible procedure would be to set a more or less arbitrary limit, for instance, a yield of ten tons below which it is recognized that the objects do not qualify as tests. If we are asked to adhere to some yield limitation in a rigorous manner we can certainly accomplish that by approaching any such experiment in a stepwise fashion. While this will involve

1257850

~~SECRET~~

~~SECRET~~

Mr. McCone

-3-

October 16, 1958

us in more labor and in more expense it also will give us more thorough knowledge and may therefore pay in the long run. Whether or not such additional experiments are permitted in a reasonably generous fashion the Laboratory is planning to continue on weapons development as mentioned above. The effectiveness of this development will depend, however, to a considerable extent on the rules which are to be established. Keeping our test organization in a position to resume testing as dictated by an agreement or lack of it, and catching up on the analysis of past tests, will consume about 6 percent of the Laboratory effort, down from a planned level of 14 percent and a current level of 16 percent.

The Laboratory has recently started on a program of weaponizing devices which we have already tested. Since there are now several satisfactory designs which should be weaponized we are planning to increase our percentage effort to a figure of 15 percent. This work will be carried out jointly with the Livermore branch of the Sandia Laboratory.

Lastly, we expect to increase greatly our efforts in the non-military uses of nuclear explosives. This topic has been covered in detail in our Plowshare program letter. We expect that the Plowshare program will account for 4 percent of the Laboratory's effort in the next period.

In addition, the Laboratory is engaged in a general survey of other possible fields in which we might be interested. We have no firm plans at the present time but we might make some suggestions in the not too distant future. In making these we shall be guided by the consideration that the facilities and skills already available in the Laboratory may make it possible for us to carry out some important tasks in a particularly expeditious manner. Such a survey can be expected to account for about 3 percent of the Laboratory's activities.

The following table shows the approximate distribution of percentage efforts in the various fields mentioned together with a comparison with the percentage efforts allotted at the beginning of the fiscal year. It will be noted that the total effort which we plan to expend on nuclear explosives is, according to our present (59 percent), less than it was in the previous plan (63 percent), but the difference is not very significant.

	Planned FY 59	August Rate	Proposed for Immediate Future
Weaponization	12	14.5	15
Test Preparation and Execution	13.8	16.0	6
Weapon and Device development	34	35.6	34
Plowshare	3.2	1.4	4
Sherwood	12.6	12.5	12
Pluto	11.1	9.5	12
Pure Research	13.3	10.5	14
Miscellaneous and Additional Activities	--	--	3

1257851

~~SECRET~~

~~SECRET~~

Mr. McCone

-4-

October 16, 1958

A more detailed and definitive plan is under consideration.

Sincerely yours,



Edward Teller

ET:gg

Distribution:

1/A Mr. John A. McCone
2-6/A Brig. Gen. A. D. Starbird
7/A H. A. Fidler
8/A N. E. Bradbury
9/A W. B. Reynolds
10-11A Files

1257852

~~SECRET~~